

CLAIMS

1. Process for vaporizing aminonitrile and water, characterized in that the water in the vapour state is used as the carrier gas for the vaporization.

5 2. Process according to claim 1, characterized in that the water vapour is employed at a temperature of from 120 to 600°C and preferably from 200 to 550°C.

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10 3. Process according to *Claim 1* ~~either of claims 1 and 2~~, characterized in that the aminonitrile is employed at a temperature of from 20 to 300°C and preferably from 100 to 250°C.

9 15 4. Process according to *Claim 1* ~~one of claims 1 to 3~~, characterized in that the mixture of aminonitrile in the water vapour that is obtained is brought rapidly in a heat exchanger to a temperature at which the vaporization of the mixture is complete.

9 20 5. Process according to *Claim 1* ~~one of claims 1 to 4~~, characterized in that the mixture of aminonitrile in the water vapour that is obtained is brought to the temperature of reaction between the aminonitrile and water, preferably to a temperature of from 200 to 450°C and, more preferably, from 250 to 400°C.

9 25 6. Process according to *Claim 1* ~~one of claims 1 to 5~~, characterized in that the aminonitrile is a linear or branched aliphatic aminonitrile having 3 to 12 carbon atoms.

7. Process according to ~~one of claims 1 to~~ *claim 1*

6, characterized in that the aminonitrile originates from the hydrogenation to a primary amine function of one of the two nitrile functions of a dinitrile selected from adiponitrile, methylglutaronitrile, ethylsuccinonitrile, dimethylsuccinonitrile, malononitrile, succinonitrile, glutaronitrile and dodecanedinitrile and is preferably 6-amino-capronitrile.

8. Process according to ~~one of claims 1 to~~ *claim 1*

7, characterized in that the vaporization of the aminonitrile is conducted under an absolute pressure of from 0.1 to 3 bar.

9. Process according to ~~one of claims 1 to~~ *claim 1*

8, characterized in that it is performed with a system without retention of liquid.

10. Process according to claim 9, characterized in that one of the following technologies is employed:

- evaporation of the aminonitrile as a film on a heated surface, in an evaporator of falling-film type;
- evaporation of an at least partly liquid mist of aminonitrile in the superheated water vapour.

11. Process according to claim 10, characterized in that the distribution of the aminonitrile over the tubes of the falling-film evaporator is carried out by:

- supplying the at least partly liquid

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aminonitrile to the tube plate, then distributing this aminonitrile in each tube;

- 5 - distributing the at least partly liquid aminonitrile in each tube by atomization to a mist of the aminonitrile above the tube plate.

12. Process according to claim 10, characterized in that the evaporation of an at least partly liquid mist of aminonitrile in superheated water vapour is single-stage or multistage.

- 10 13. Process according to ^{Claim 1} ~~one of claims 1 to 12~~, characterized in that the system for vaporizing the aminonitrile is selected such that the dwell time of liquid aminonitrile in the said system is less than or equal to one minute, preferably less than or equal to 5
15 seconds.

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